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(54) Cosmetic composition.

(57) A cosmetic oleogel suitable for topical application to the human body surface comprises :
(i) from 5 to 95% by weight of a cosmetically acceptable solvent chosen from synthetic hydrocarbon oils derived from poly-α-olefins, the majority of which comprise branched alkyl chains ; and
(ii) from 5 to 80% by weight of a cosmetically acceptable hydrophobic polymer thickener for the synthetic hydrocarbon oil, which is preferably substantially free from crosslinking and soluble in the solvent.

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The invention relates to a cosmetic composition, particularly an leogel which can be appli d topically to th human body surface, specially the skin (including the mucosae), the hair and the nails. The cosm tic ol o-gel can b used as such, for example to provide an occlusive layer wherever it is applied, or it can b empl yed as a carrier. or vehicle for ingredients intend d to impart to the region of applicati n some cosmetic or pharmaceutical benefit.

Hydrocarbons obtained from natural sources, such as petrolatum (also known as petroleum jelly or soft paraffin) which is generally derived from non-renewable fossil fuels, have been used for many years for topical application to human skin. This provides an occlusive film to prevent water loss from the skin to the environment, thereby allowing water diffusing from the underlying tissues to accumulate in the stratum corneum. Petrolatum has also been used as an ingredient of skin care products, such as hand creams and lotions, and has also featured in hair grooming or conditioning products, particularly as a setting aid to maintain hair in a desired configuration.

It is, however, widely recognised thai petrolatum possesses a relatively narrow spectrum of sensory or aesthetic properties. In particular, it can impart to the skin and hair an uncomfortable feeling of warmth, in addition to a sticky, waxy feel, and this has restricted its use to barrier products such as petrolatum itself and hand creams containing it, where a temporary functional protective film on the skin is desired, and to hair dressings such as pomades.

In view of disadvantages such as those attributable to traditional petrolatum, there exists a need to locate an alternative occlusive product that has all the desirable attributes of emolliency and occlusivity of petrolatum, without serious negative subjective properties.

The problems of preparing an ointment base in the form of a gel with controlled consistency characteristics has been reviewed in GB 1 370 699 (Dynamit Nobel Aktiengesellschaft). Here it is stated that coconut oil containing longer-chained fatty acid than lauric acid is not suitable for use as an ointment base due to the strong dependence of the consistency on temperature. It is also proposed to mix short chain fatty acids with long chain fatty acids and esterify the mixture with glycerine to obtain an ointment base, like soft paraffin with good spreadability, but with unsatisfactory consistency. A further proposal involves bringing liquid paraffin into an ointment-like consistency by working with polyethylene, but this is seen as unsatisfactory as the use of hydrocarbons in pharmaceuticals and cosmetics is limited, due to the hydrophobic properties of these products. Yet a further proposal concerns the attempt to give liquid triglycerides, such as almond oil, an ointment-like consistency by means of additives, such as natural waxes, for example spermaceti and beeswax. However, even this proposal is said not to fulfil the demands made on ointment bases due to their lack of stability.

Against this background, Dynamit conclude that it has hitherto proved impossible to convert normally liquid, saturated fatty acid esters into a spreadable ointment base. Their solution to the problem of developing an ointment base which remains spreadable over a wide temperature range of at least 0 to 40°C and which is not prone to rancidity, is to employ glycerine esters of saturated fatty acids with 8 to 12 carbon atoms in the molecule. One aspect of this approach is to form an ointment base from an intimate mixture of a saturated triglyceride wherein the fatty acid residues each contain 8 to 12 carbon atoms, and polyethylene having an average molecular weight of 1,000 to 20,000 or an ethylene/vinyl acetate copolymer, as a gelling agent.

While appreciating the shortcomings of the prior proposals reviewed by Dynamit, we have found that fully saturated short chain fatty acids with a very low Iodine Value are unreasonably costly to employ and in any case do not yield a sufficiently attractive ointment base to meet the demands of the cosmetics industry today.

We have, however, now discovered in contrast to the teaching of Dynamit that certain synthetic hydrocarbon oils can be treated 'with a special polymer in a controlled manner, to increase their viscosity, thereby to provide an oleogel having predictable rheological and melting characteristics. This oleogel can, moreover, be engineered to possess the appearance and desirable physical properties of petrolatum, in particular optical properties, temperature stability, occlusivity and emolliency, 'without some of the undesirable characteristics of this product referred to earlier.

It should be explained that by "oleogels", is meant oleagenous (ie oily) materials which have been thickened to provide gel-like properties.

We have also discovered that selected polyol fatty acid polyesters such as those derived from natural sugars and vegetable oils, can be incorporated with the synthetic hydrocarbon oils and with the special polymer to provide an oleogel which also has the appearance and physical characteristics of petrolatum, without the undesirable sensory properties previously alluded to.

According to the invention, there is provided a cosmetic oleogel suitable for topical application to the human body surface, which comprises:

(i) from 5 to 95% by weight of a cosmetically acceptable solvent chosen from synthetic hydrocarbon oils derived from poly-α-olefins, the majority of which comprise branched alkyl chains; and

(ii) from 5 to 80% by weight of a cosmetically acceptable hydrophobic polymer thickener for the synthetic

hydrocarb n oil, which is preferably substantially fr e from cross-linking and soluble in the s lvent.

The present inventi n, and in particular pr f rred asp cts and mbodiments thereof, will now be described in detail.

Th cosmetic oleogel according to the invention, in its simpl st form, compris s a bl nd f a sp cial solvent chosen from synthetic hydrocarbon oils, together with a hydrophobic polymer thickener which is s luble in the solvent.

The oleogel so formed will generally retain its gel-like characteristics over a wide temperature range, for example from -15°C to +60°C.

The Solvent

The cosmetically-acceptable solvent is chosen from synthetic hydrocarbon oils derived from poly-α-olefins, the majority (i.e. greater than 60%, preferably greater than 80%) of which comprise branched alkyl chains, and mixtures thereof.

Synthetic hydrocarbon oils suitable for use in the invention may be any such oils which, with the dissolved hydrophobic thickener, give oleogels having the desired physical properties, as mentioned above. Suitable oils are commercially readily available.

Preferred are those synthetic hydrocarbon oils as defined above which have an average molecular weight in the range 300 to 2000 and/or a viscosity (at 40°C) in the range 5 to 1500cSt.

A particularly preferred example of a synthetic hydrocarbon oil, in accordance with the invention, is ARLAMOL PAO-10, available from ICI. This oil is a mixture of branched hydrocarbons having an average molecular weight of 689. Further physical properties include:

Boiling point	>250°C
Melting point	<-40°C
Specific gravity	0.83
Viscosity	64cSt (40°C)
Flash point	>149°C

Other oils of the ARLAMOL series are also suitable for use in the invention.

Further examples of suitable synthetic hydrocarbon oils for use in the invention are the ETHYFLO series of oils, available from Ethyl Corporation.

The amount of the solvent present in the oleogel in accordance with the invention is generally from 5 to 95%, preferably from 10 to 80% by weight.

The Hydrophobic Polymer Thickener

The hydrophobic polymer thickener should be cosmetically acceptable and is preferably chosen from polymers which are substantially free from cross-linking and which are soluble in the solvent, as herein defined.

Examples of suitable polymer thickeners are:

polyethylene homopolymer, such as A-C Polyethylene 1702 (molecular weight 1700),

A-C Polyethylene 617 (molecular weight 4300) and A-C Polyethylene 6 (molecular weight 5500), available from Allied Signal, and

polyethylene vinyl acetate copolymers, such as A-C Ethylene-vinyl acetate 405 (molecular weight 6500, co-monomer 6-11%), and

A-C Ethylene-vinyl acetate 400 (molecular weight 6500, co-monomer 13%), also available from Allied Signal.

These polymer thickeners, which may be used either singly or as mixtures, are preferably employed as a granular solid, which is suitable for addition to and solution in the solvent.

The amount of hydrophobic polymer thickener present in the oleogel in accordance with the invention is generally from 5 to 80%, preferably from 10 to 70% by weight.

P ly l fatty acid polyesters

The cosmetic oleog l according to the inv ntion can also optionally comprise on or m re p lyol fatty acid

polyesters that can be mployed as a solv nt. These are deriv d from any aliphatic or aromatic polyol which has at least 4 fre hydroxyl groups, at least 60% of which are then esterified with one or more fatty acids having from 8 to 22 carbon atoms.

It is preferred that at l ast 60% of the free hydroxyl groups ar esterified, as this renders these polyol fatty acid polyester resistant to cleavage by enzymes, particularly lipase, and as such, are particularly suitable for use in oleogels intended for application to the skin surface where lipases can exist.

The polyol from which these polyol fatty acid polyesters are derived is preferably chosen from sugar polyols, which comprise mono-, di- and polysaccharides.

Preferred examples of monosaccharide sugar polyols include:

Pentose sugar polyols such as D-ribose, D-arabinose, D-xylose, D-lyxose, D-ribulose and D-xylulose.

Hexose sugar polyols such as D-allose, D-altrose, D-glucose, D-mannose, D-gulose, D-idose, D-galactose, D-talose, D-fructose, D-sorbose and D-tagatose.

Heptose sugar polyols, such as D-mannoheptulose and D-sedoheptulose.

Preferred examples of disaccharide sugar polyols include:

Disaccharides sugar polyols, such as maltose, lactose, cellobiose, sucrose, trehalose, gentiobiose, melibiose and primeverose.

Preferred examples of polysaccharide sugar polyols include:

Tri-saccharides, such as gentianose and raffinose.

The polyol from which the polyol fatty acid polyesters are derived can alternatively be chosen from sugar alcohols.

Preferred examples of sugar alcohols include:

D-mannitol, D-sorbitol, D-ribitol, D-erithritol, D-lactitol and D-xylitol; and derivatives of sugars such as α-methyl glucoside and inositol.

The fatty acids which are employed to form the polyol fatty acid polyesters can be individual free fatty acids having from 8 to 22 carbon atoms in the fatty acid molecule.

These fatty acids can be saturated or unsaturated, linear or branched chain fatty acids.

A preferred source of fatty acids for forming these other polyol fatty acid polyesters are naturally occurring oils and fats which provide a source of a blend of fatty acids residues, whose choice can vary widely the physical and chemical properties of the polyol fatty acid polyesters obtained therefrom.

These oils and fats can be obtained from natural sources and used as such, or following chemical or enzymic treatment to provide modified oils and fats by full or partial hydrogenation, interesterification, transesterification or fractionation.

Suitable natural sources of these fatty acid residues may he of animal, vegetable or marine origin, such as tallow, lanolin oil, cod liver oil, halibut liver oil, other fish oils, coconut oil, palmkernel oil, palm oil, butter fat, soyabean oil, safflower oil, cotton seed oil, rapeseed oil, poppy seed oil, corn oil, sunflower oil, ground nut oil, fish liver oils and mixtures thereof. Preferred fatty acid sources are palm oils, partially hydrogenated palm oils, palm kernel oils, optionally partially hydrogenated soya bean oils and partially hydrogenated fish oils.

By employing a mixture of fatty acids, or one or more naturally occurring oils such as those exemplified above, when synthesising these other polyol fatty acid polyesters, it is possible to provide polyol fatty acid polyesters in which a mixture of ester groups is present on a single polyol molecule.

The polyol which can be reacted with a source of fatty acids such as those herein described will, as has previously been stated, comprise at least 4 free hydroxy groups, any or all of which are available for esterification with the fatty acid moieties. Usually, at least 60% of these free hydroxy groups are esterified to provide the polyol fatty acid polyester which is to be employed in forming the oleogel of the invention. More preferably, 70% and ideally at least 80% of these free hydroxy groups are substituted with fatty acid ester groups.

Preferred examples of the polyol fatty acid polyesters include:

Sucrose octaisostearate
Sucrose octa-2-ethylhexanoate
Sucrose fatty acid polyesters derived from
- palm and palmkernel oil mixtures
- soyabean oil
- soyabean and palm oil mixtures
- palm oil
- coconut oil, and
- mixed fish oils

The amount of thes polyol fatty acid poly sters, when empl yed, is gen rally from 1 to 95%, preferably from 5 to 80% by weight, of the solvent component of th oleogel.

OTHER INGREDIENTS

Th oleogel according to th inventi n can opti nally compris ther ingredients to provide additional skin or hair b nefit properties.

The oleogel according to the invention can also include healing agents, humectants, antioxidants, stabilisers, film formers, emulsifiers, surfactants, sunscreens, preservatives, perfumes and colourants.

The oleogel according to the invention can also comprise other ingredients conventionally used in cosmetic products which are suited to topical application to human skin or hair.

Other ingredients, when present, may for example form up to 50% by weight of the composition and by conveniently form the balance of the ointment base.

Process for preparing the oleogel

The invention also provides a process for the preparation of an oleogel suitable for topical application to skin or hair, which comprises the step of blending a hydrophobic polymer thickener, as herein defined, with a solvent chosen from synthetic hydrocarbon oils, as herein defined, and optionally one or more polyol fatty acid polyesters as herein defined.

According to a preferred embodiment of the process of the invention, the polymer and solvent are heated together with stirring to dissolve the polymer, and then cooled with continued stirring through the cloud point temperature of the mixture to obtain a transluscent oleogel. When the polymer is polyethylene, it is preferred to cool the mixture rapidly to obtain the oleogel having the best texture and appearance equivalent to that of petrolatum.

Use of the oleogel

The oleogel according to the invention is intended primarily as a product for topical application to human skin, in particular to form an occlusive layer thereon, to reduce moisture loss. The skin can thereby be protected from adverse climatic conditions, for example from excessive exposure to sun and wind, or from detergent damage, for example that following immersion of the hands in aqueous detergent solution when washing dishes or clothes. A particular use for the oleogel of the invention is in the manufacture of colour cosmetics, lipsticks and lip salves.

The oleogel can also act as a carrier for sunscreen agents, perfumes or germicides or other skin benefit agents, whose presence on the skin surface can be prolonged due to the presence of the occlusive film.

The oleogel can also be used to treat the hair and the scalp, particularly as a hair hold preparation or grooming aid, to maintain hair in a desired configuration or style.

In use, a small quantity of the oleogel, for example from 1 to 5g, is applied to the skin or hair from a suitable container or applicator and, if necessary, it is then spread over and/or rubbed into the skin or hair using the hand or fingers or a suitable spreading device.

Product form and packaging

The oleogel of the invention can be formulated as a soft solid or jelly-like product having the rheological and other physical properties as herein defined, and it can be packaged in a suitable container to suit its viscosity and intended use by the consumer. For example, the oleogel can be stored in a deformable tube or in a lidded jar.

The invention accordingly also provides a closed container containing the oleogel as herein defined.

Physical properties of the oleogels

i) Consistency

The oleogel according to the invention should preferably have a Consistency Value of from 10 to 100, as measured by the Consistency Value Test. Oleogels having a Consistency Value of less than 10 are generally considered to be too hard for general cosmetic use, while oleogels having a Consistency Value of greater than 100 are generally too soft for use where a firm consistency is required.

The method used for measuring the Consistency Value f th ole gel, which has generally the same rh ological properties and consistency of petrolatum, is described bel w.

Consistency Value Test

The Consistency Value of the oleogel is measured by a cone penetrometer, whose construction and use will n w be described.

The consistency of the oleogel of the invention is measured by means of a penetrometer, such as a Model PNR6, supplied by Sommer & Runge KG., Berlin fitted with a polished cone-shaped metal plunger weighing 116g, having a detachable steel tip with an internal angle of 120°C. The containers for the test are flat-bottomed metal or glass cylinders that are 102 ± 6mm in diameter and not less than 60mm in height.

The procedure for carrying out the Consistency Value Test is as follows:

Melt a quantity of the oleogel to be tested at a temperature of 82 ± 2.5°C, stir through the cloud point of the polymer and then pour into one or more containers, filling to within 6mm of the rim. Cool to 25 ± 2.5°C over a period of not less than 16 hours, protected from draughts. Two hours before the test, place the containers in a water bath at 25 ± 0.5°C. If the room temperature is below 23.5°C or above 26.5°C, adjust the temperature of the cone to 25 ± 10.5°C by placing it in the water bath.

Without disturbing the surface of the oleogel under test, place the container on the penetrometer table, and lower the cone until the tip just touches the top surface of the test oleogel at a spot 25mm to 38mm from the edge of the container. Adjust the zero setting and quickly release the plunger, then hold it free for 10 seconds. Secure the plunger and read the total penetration from the scale. Make three or more trials, each so spaced that there is no overlapping of the areas of penetration. When the penetration exceeds 20mm, use a separate container of the test composition for each trial. Read the penetration to the nearest 0.1mm. Calculate the average of the three or more readings, and conduct further trials to a total of ten if the individual results differ from the average by more than ±3%: the final average of the trials is not less than 1.0mm and not more than 10.0mm, indicating a Consistency Value of from 10 to 100.

ii) Occlusivity

The oleogel according to the invention should normally have a significant Occlusivity Value, if it is intended that they are to be employed, like petrolatum, to provide an occlusive layer on skin or elsewhere on the body surface. Usually, the oleogel will have an Occlusivity Value of at least 30%, as measured by the Occlusivity Value Test. Preferred oleogels possess an Occlusivity Value of at least 50%, most preferably at least 60% and ideally of at least 70% as measured by this Test. Details of how this test is performed are given below.

Occlusivity Value Test

In view of the wide variation in the characteristics and properties of human skin, as seen amongst a group of individuals of differing ages, races and habitat, it is necessary to provide a standard in vitro test which is readily reproducable, in order to measure the occlusivity of the oleogel.

An empirical test has accordingly been devised using a standard viscose cellulose film, namely Visking dialysis tubing available from Medicell International Ltd. as a substitute for human skin. This film has a molecular weight cut-off of from 12,000 to 14,000.

In this test, the occlusivity of a film of the oleogel to the passage of water vapour applied to the dialysis film is measured in a standard manner as follows:

Preparation of occlusivity cell

A 5ml beaker, for example a Dispo beaker available from American Scientific Products, the diameter of the open end of which is 25mm (i.e. an area of ~5cm²), is used to provide an occlusivity cell.

1ml distilled water is introduced into the beaker and a film of Visking dialysis tubing is stretched across the open end of the beaker and fixed in place with adhesive, for example Assembly Aid Adhesive (3M).

The rate of water loss through the Visking film at 20°C, at atmospheric pressure and at 50% external relative humidity, is determined by measuring the decrease in weight of the beaker with time using a Sartorius 4503 microbalance, with a D to A converter feeding the output to a chart recorder.

After a steady-state water loss rate has been established, a product whose Occlusivity Value is to be tested, i.e. the oleogel of the invention is applied as a film to the surface of the Visking dialysis tubing. When the test substance is liquid or a soft solid, it can be applied using a plastic-gloved finger. When the test material is a solid, it is n cessary first to melt it as it is applied to th surface of th Visking dialysis film.

The new steady-state water loss rate, under th same physical conditions of pressure, temp ratur and relativ humidity, is then recorded after excess water from th product has b en lost.

Occlusivity of the product film (i.e. the oleogel) is then calculated as:

$$\% \text{ occlusivity} = 1-\left[\frac{\text{water loss rate with product}}{\text{water loss rate without product}}\right] \times 100$$

All water loss rates are corrected for the relatively small rate of water loss through the walls of the beaker (if any). This is determined by measuring the water loss from a beaker where the Visking film is replaced with impermeable aluminium foil.

Occlusivity is normally determined 4 times for each sample. For each measurement, the sample loading is determined from the increase in recorded weight immediately after application to the Visking film of the composition of the invention. Since the loading is not reproducable precisely, a straight line is fitted to a loading versus occlusivity plot (by linear regression) and the occlusivity at a typical consumer product loading of 10g/sq m is then interpolated. In each case, the occlusivity is approximately linearly dependent on the loading for the range covered.

The occlusivity is then expressed as an arithmetic mean of the 4 determinations ± 2 standard errors for 95% significance.

Experience has shown that about 10mg of the product applied to the Visking film is sufficient to provide an occlusive layer; without an occlusive layer, the film will normally transmit about 25g water vapour/m^2/hr.

EXAMPLES

The invention is illustrated with reference to the following examples in accordance with the invention. In each case, a blend was prepared by mixing together the polymer and the polyol fatty acid polyester and/or synthetic hydrocarbon oil.

For each formulation, the Occlusivity Value and Consistency Value were each determined by the respective Test, as described herein.

Examples 1 & 2

These examples illustrate oleogels in accordance with the invention prepared from an oil, or oils and sucrose polyester as solvent, thickened with polyethylene/vinyl acetate copolymer as the polymer thickener.

In each example, the oleogel was prepared as follows:

i) Heat the solvent and polyethylene/vinyl acetate copolymer until a clear, homogenous solution results.

ii) At just above the "cloud point", scrape the inside of the vessel containing solvent and polymer whilst cooling the outside of the vessel with a stream of water at about 18°C or lower. This removes the layer of gel formed on the cool wall, thus allowing the still liquid interior of the solution then to come into contact with the cool wall to promote the gelling of a further layer of oleogel. This procedure is continued until the entire solution has been converted to an oleogel.

The formulation of each of the Examples 1 and 2, together with their respective Occlusivity Values and Consistency Values are given below in Table 1.

TABLE 1

Example Formulation	% w/w	Occlusivity Value	Consistency Value
1. Polyethylene vinyl acetate copolymer*	20	78	56
ARLAMOL PAO-10	80		
2. Polyethylene vinyl acetate copolymer*	13	81	30
Sucrose polyester**	17.4		
ARLAMOL PAO-10	69.6		

* available from Allied Signal Inc.

** derived from palm oil/palm kernel oil

Claims

1. A cosmetic oleogel suitable for topical application to the human body surface, which comprises:
(i) from 5 to 95% by weight of a cosmetically acceptable solvent chosen from synthetic hydrocarbon oils derived from poly-α-olefins, the majority of which comprise branched alkyl chains; and
(ii) from 5 to 80% by weight of a cosmetically acceptable hydrophobic polymer thickener for the synthetic hydrocarbon oil.

2. An oleogel according to claim 1, wherein greater than 60% of the poly-α-olefins from which the hydrocarbon oil is derived comprise branched alkyl chains.

3. An oleogel according to claim 1 or claim 2, wherein the hydrocarbon oil has a molecular weight in the range 300 to 2000and/or a viscosity (at 40°C) in the range 5 to 1500cSt.

4. An oleogel according to any one of claims 1 to 3, wherein the solvent additionally comprises one or more polyol fatty acid polyesters.

5. An ol ogel acc rding to claim 4, wh rein the polyol fatty acid polyester is derived from an aliphatic or armatic polyol having at least 4 free hydroxyl groups, at least 60% of which are esterified with one or more fatty acids having from 8 to 22 carb n atoms.

6. An oleogel according to claim 4 or claim 5, wherein the polyol from which the polyol fatty acid poly ster is derived is a sugar polyol which comprises at least one f a mono-, di- and polysaccharide.

7. An oleogel according to claim 6, wherein the polyol fatty acid polyester is chosen from:
   Sucrose octaiosostearate
   Sucrose octa-2-ethylhexanoate
   Sucrose fatty acid polyesters derived from
      palm and palmkernel oil mixtures
      soyabean oil
      soyabean and palm oil mixtures
      palm oil
      coconut oil, and
      mixed fish oils.

8. An oleogel according to any one of claims 4 to 7, wherein the polyol fatty acid polyester is present in an amount of from 1 to 95% by weight of the solvent component.

9. An oleogel according to any preceding claim, wherein the polymer thickener is substantially free from cross-linking and is soluble in the solvent.

10. An oleogel according to any preceding claim, wherein the polymer thickener is a polyethylene homopolymer.

11. An oleogel according to any one of claims 1 to 9, wherein the polymer thickener is a polyethylene vinyl acetate copolymer.

12. An oleogel according to any preceding claim which has a Consistency Value (as herein defined) of from 10 to 100.

13. An oleogel according to any preceding claim which has an Occlusivity Value (as herein defined) of at least 30%.

14. An oleogel according to any preceding claim, further comprising one or more protection or benefit agents for application to the body surface.

15. A process for preparing a cosmetic oleogel suitable for topical application to the human body surface, which comprises blending
   (i) from 5 to 95% by weight of a cosmetically acceptable solvent chosen from synthetic hydrocarbon oils derived from poly-α-olefins, the majority of which comprise branched alkyl chains;
   and (ii) from 5 to 80% by weight of a cosmetically acceptable hydrophobic polymer thickener for the synthetic hydrocarbon oil.

16. A process according to claim 15, wherein the solvent and the polymer are heated together with stirring to dissolve the polymer in the solvent, and then cooled with continued stirring through the cloud point temperature of the mixture to obtain a translucent oleogel.

17. A method of providing an occlusive layer on human skin, hair or nails comprising topically applying thereto an oleogel according to claim 1.

18. The use of an oleogel according to claim 1 as a vehicle for a protection agent or a benefit agent for topical application to human skin, hair or nails.